IN THE CLAIMS:

1. (Cancelled)

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Cancelled)

7. (Cancelled)

8. (Cancelled)

9. (New) An optical fiber component for spot size transition comprising, arranged inside a ferrule:

a small-diameter core, single mode optical fiber;

a large-diameter core, single mode optical fiber having a core with a diameter larger than the diameter of the core of the small-diameter core optical fiber and equal to the diameter of a core of a single mode optical fiber used in an optical fiber communication network;

a spliced portion in which the large-diameter core optical fiber and the small-diameter optical fiber are fusion-spliced; and

a spot size transition portion in which the core diameter of the small-diameter core optical fiber is expanded in the vicinity of the spliced portion by

heating to thermally diffuse a dopant contained in the core of the small-diameter core optical fiber.

10. (New) An optical fiber component for spot size transition according to claim 9, wherein a refractive index profile in the spot size transition portion continuously changes in the longitudinal direction of the optical fiber, and the spot sizes of the large-diameter core optical fiber and the small-diameter core optical fiber match in the spliced potion.

11. (New) An optical fiber component for spot size transition according to claim 9 wherein said spliced portion has a relative refractive index difference substantially identical to a relative refractive index difference of the large-diameter core optical fiber.

12. (New) An optical fiber component for spot size transition according to claim 9 wherein said small-diameter core optical fiber and said large-diameter core optical fiber have the same external diameter.

13. (New) The optical fiber component for spot size transition according to claim 9 wherein at least one of said fibers has an external diameter of 125 microns.

14. (New) A method of making an optical fiber component for spot transition between single mode optical fibers with different core diameters, comprising:

fusion-splicing a large-diameter core optical fiber and a small-diameter core optical fiber to form a spliced portion;

heating the small-diameter core optical fiber in the vicinity of the spliced portion to thermally diffuse a dopant contained in the core of the small-diameter core optical fiber and expand the core diameter of the small-diameter core optical fiber to form a spot size transition portion;

cutting the large-diameter core optical fiber at an arbitrary position to form a cut face as a light incident and outgoing end face; and then

arranging the large-diameter core optical fiber, the spliced portion, the spot size transition portion, and the small-diameter core optical fiber inside a ferrule.

15. (New) A method of making an optical fiber component for spot size transition according to claim 14,

wherein said heating produces a refractive index profile in the spot size transition portion which continuously changes along the longitudinal dimension of the optical fiber; and

wherein said heating is continued until spot sizes of the large-diameter core optical fiber and the small-diameter core optical fiber match in the spliced portion.

16. (New) A method of making an optical fiber component for spot size transition according to claim 15,

wherein said heating is continued until the relative refractive index difference of the spot size transition portion becomes substantially identical to the relative refractive index difference of the large-diameter core optical fiber in the spliced portion.

17. (New) A method of making an optical fiber component for spot size transition according to claim 14 further comprising:

monitoring transition loss in the spliced portion while conducting said heating.

18. (New) A method of making an optical fiber component for spot size transition according to claim 17 wherein said heating is discontinued at the point when the monitored transition loss of the spliced portion is minimized.

19. (New) A method of making an optical fiber component for spot size transition according to claim 14 further comprising:

splicing the light incident and outgoing end face of said large-diameter optical fiber to optical fiber in a communication network.

20. (New) A method of making an optical fiber component for spot size transition according to claim 14 wherein the outer diameter of the small-diameter core optical fiber is not changed by said heating.